

00222T" 99E24/60

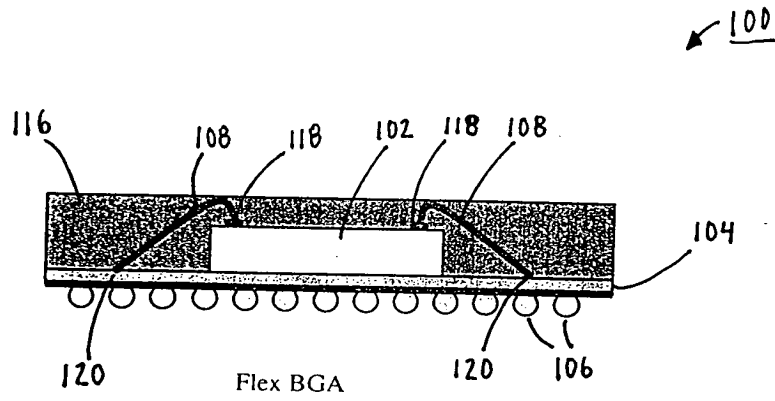


FIG. 1A

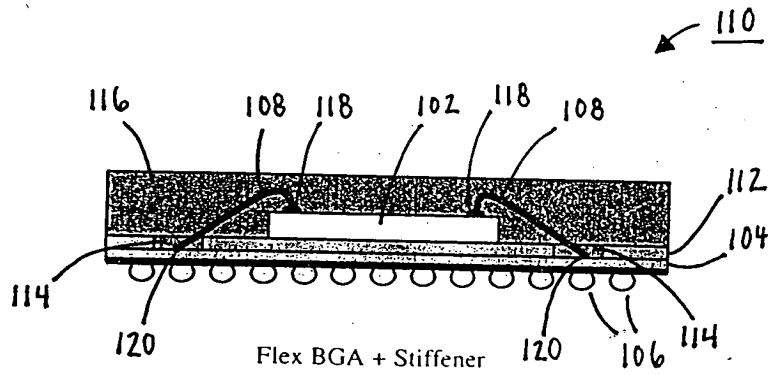


FIG. 1B

002222T 99E2460

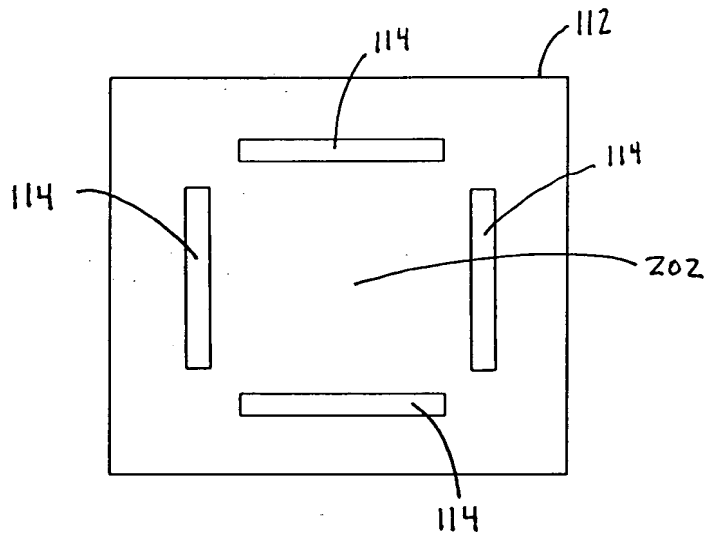


FIG. 2A

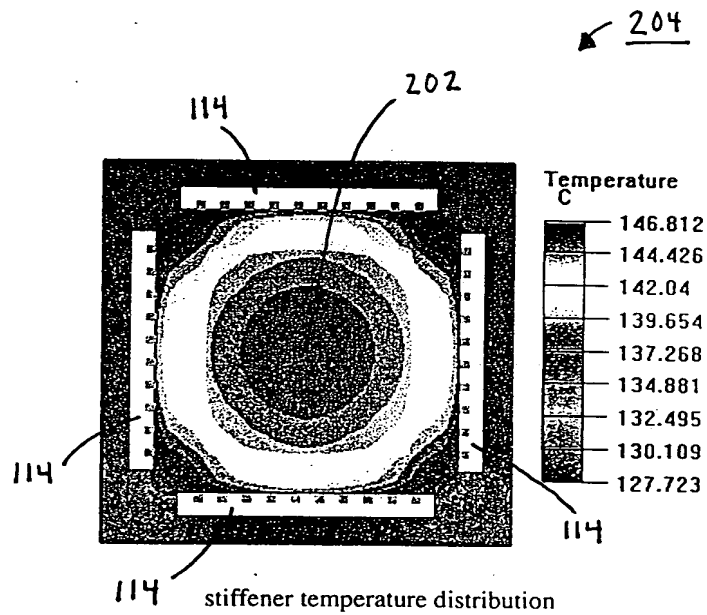


FIG. 2B

002221 99E24260

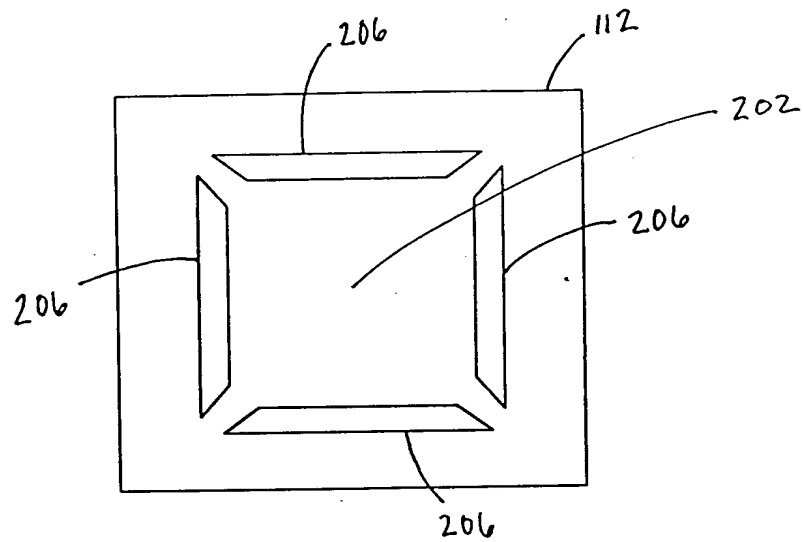


FIG. 2C

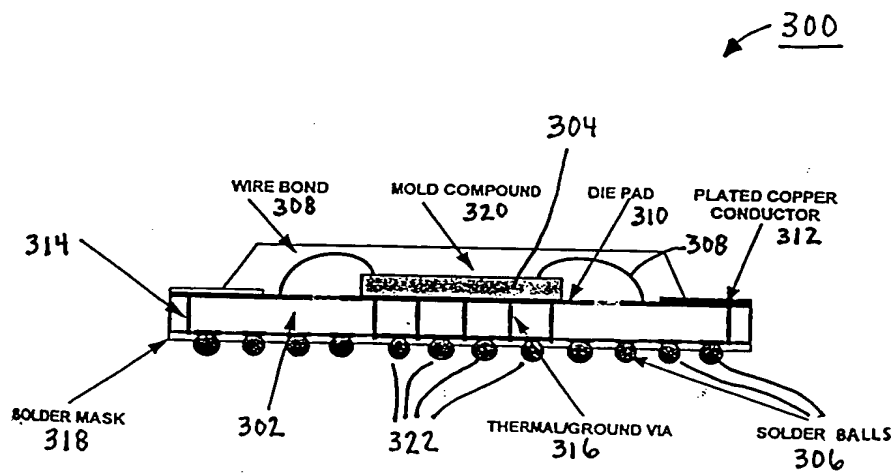


FIG. 3

002221 99324760

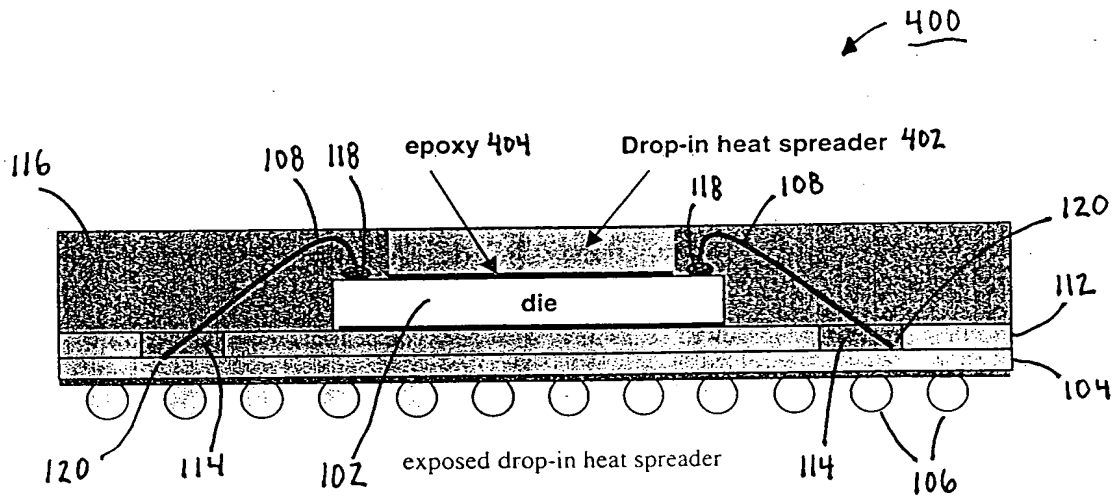


FIG. 4

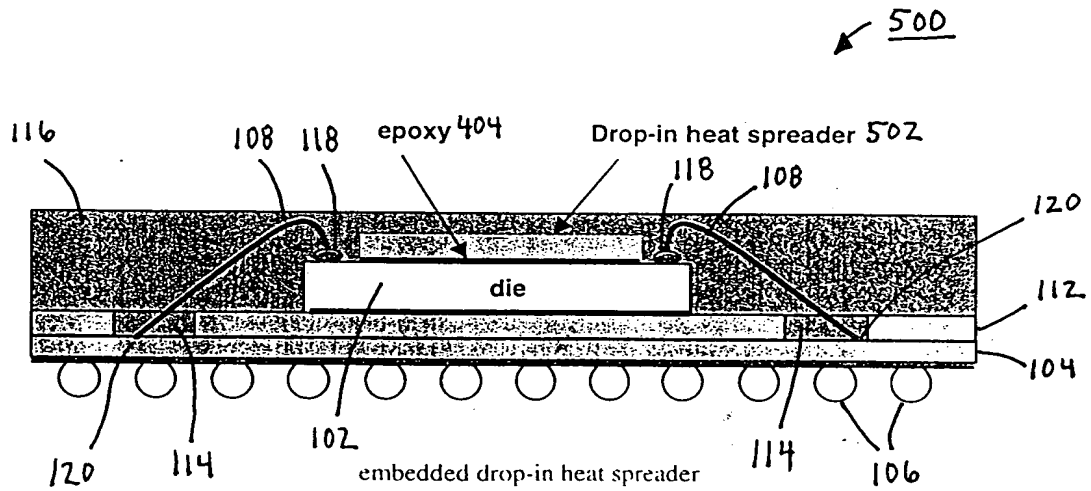


FIG. 5

09742366-122200

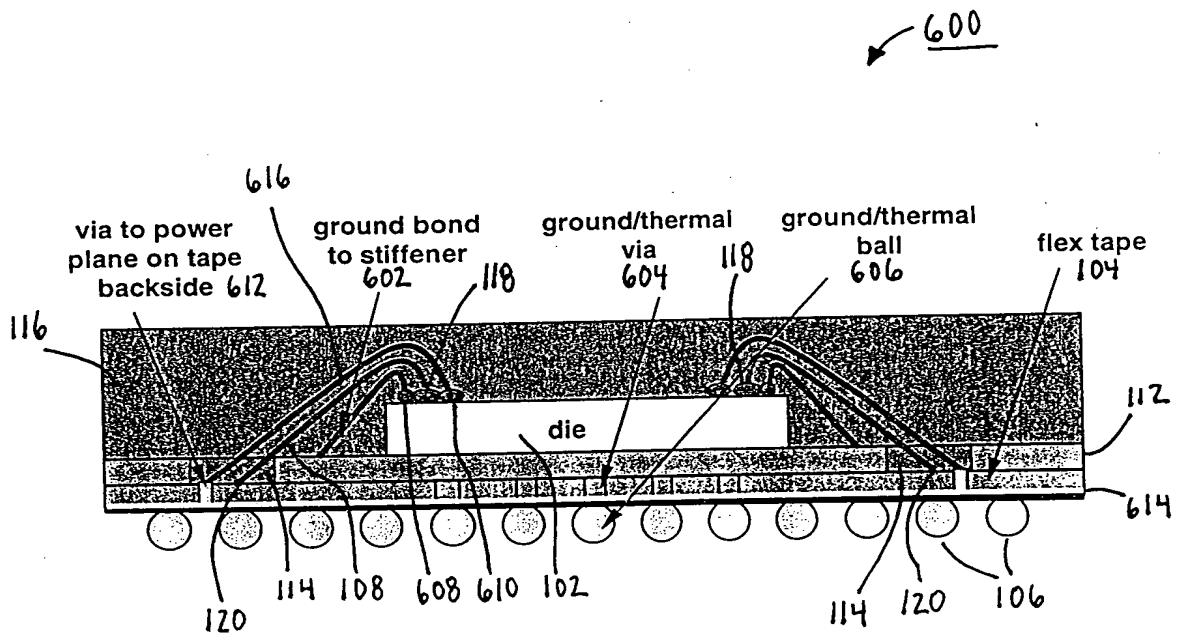


FIG. 6

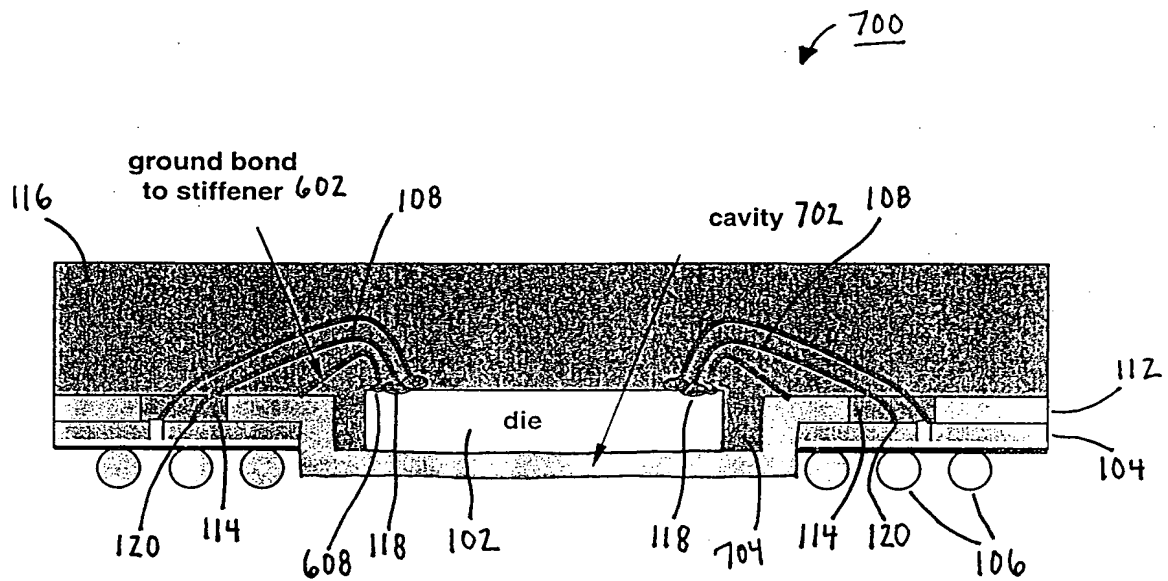


FIG. 7

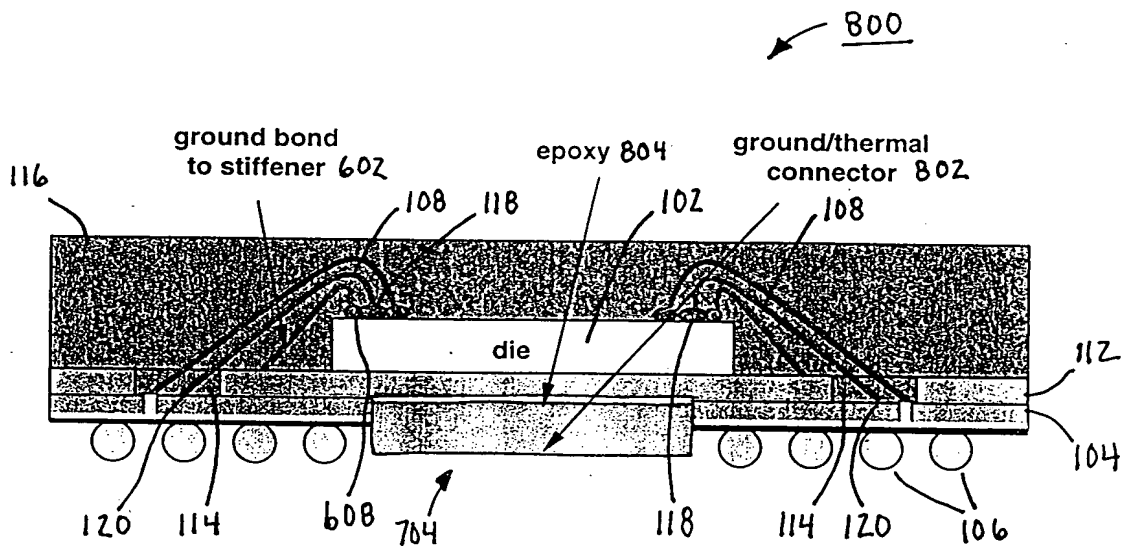


FIG. 8

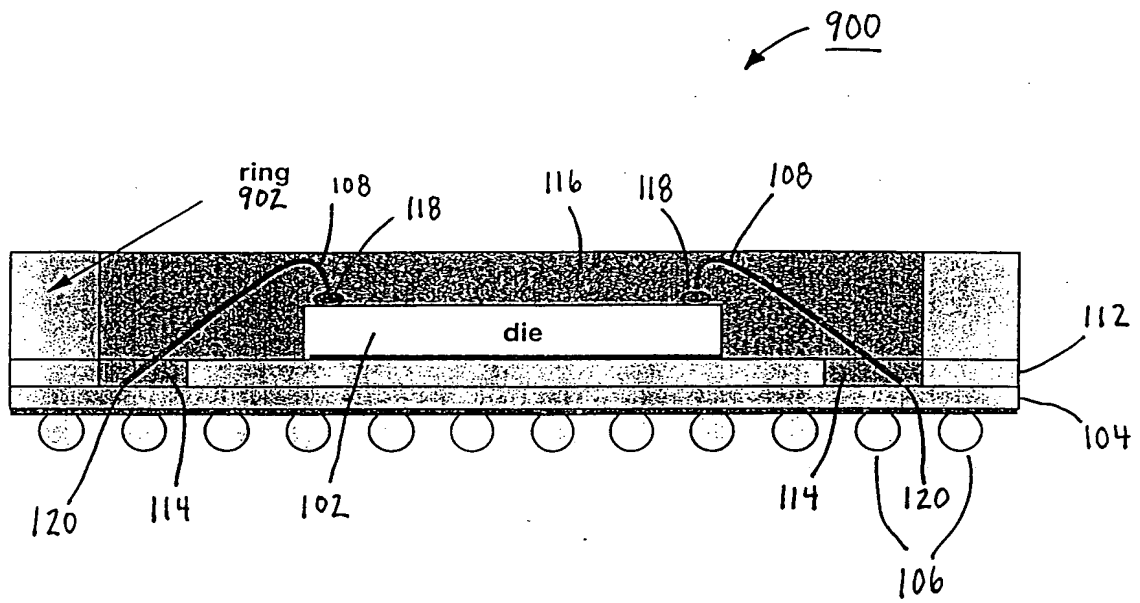


FIG. 9A

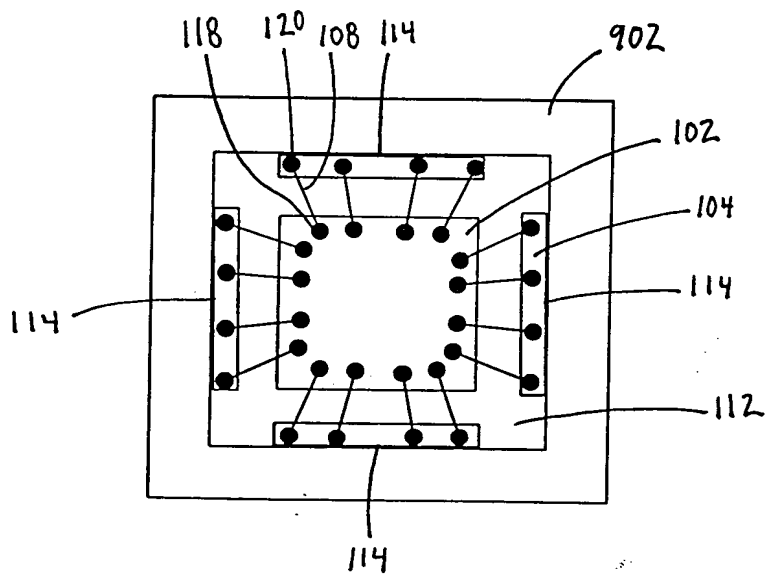


FIG. 9B

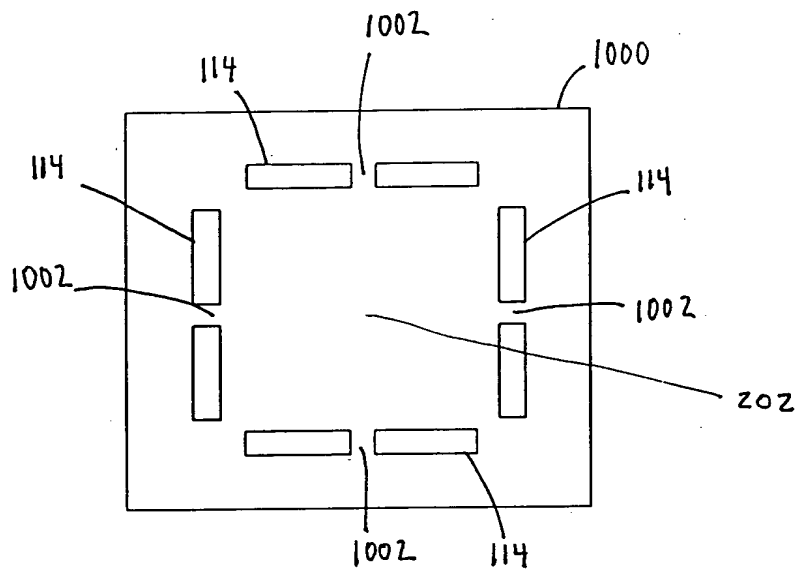


FIG. 10A

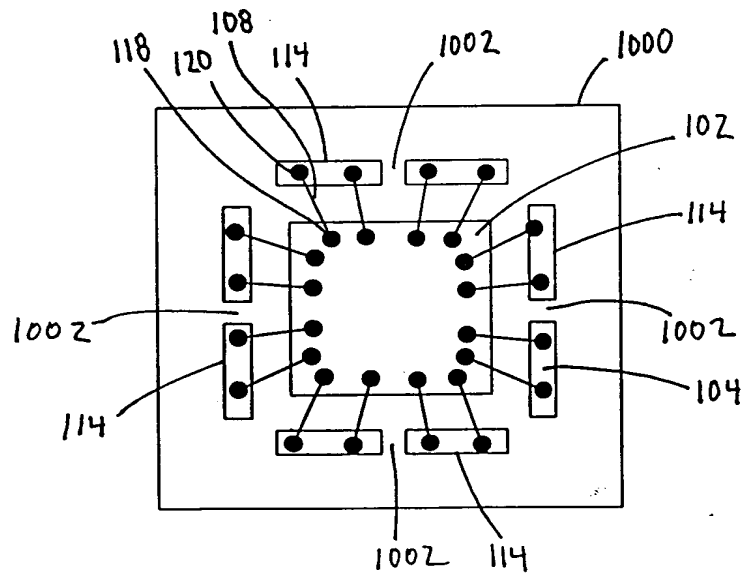


FIG. 10B



00222T 9982h/80

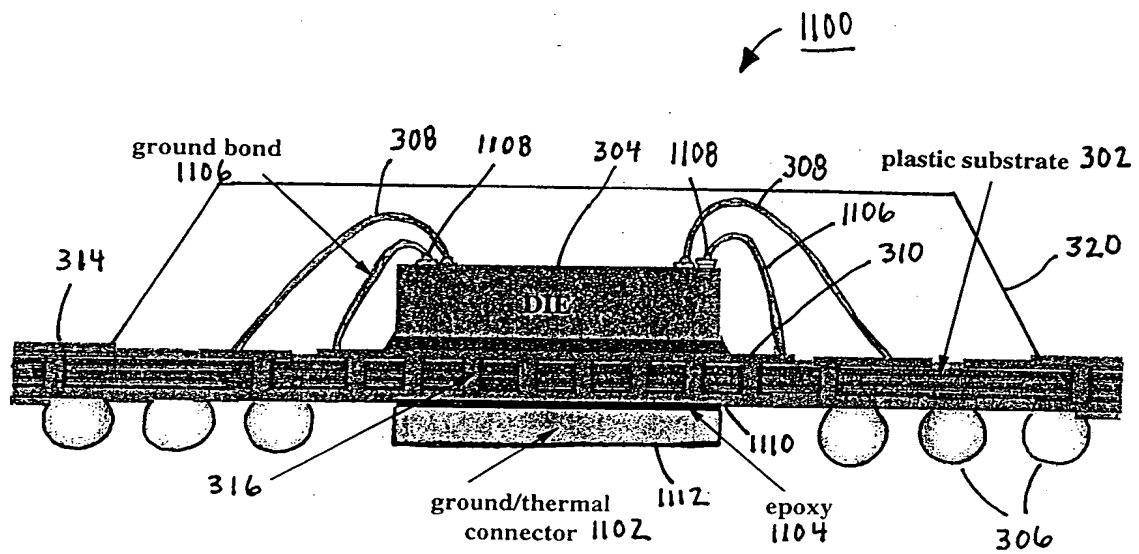


FIG. 11

09742366-122200

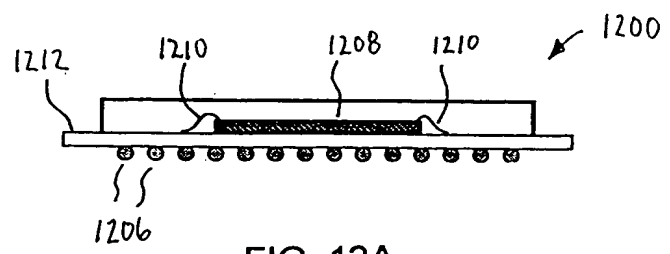


FIG. 12A

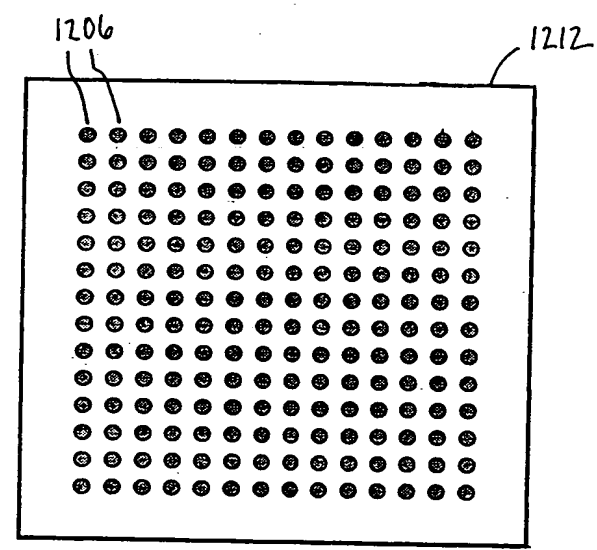


FIG. 12B

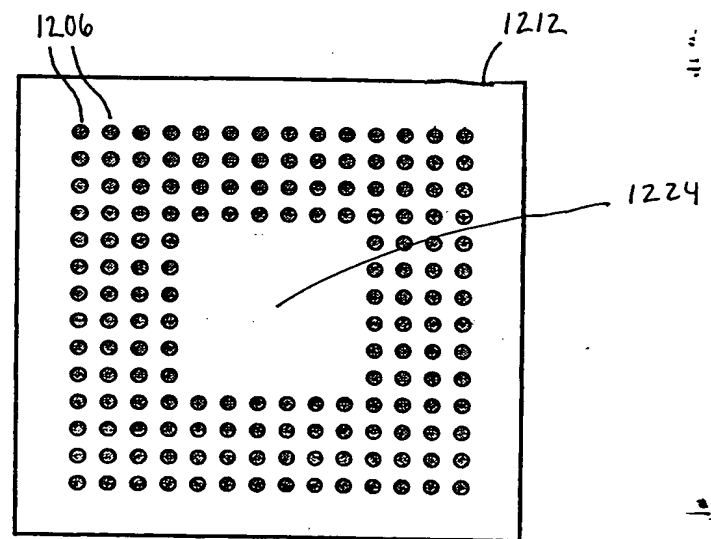


FIG. 12C

09742366.122200

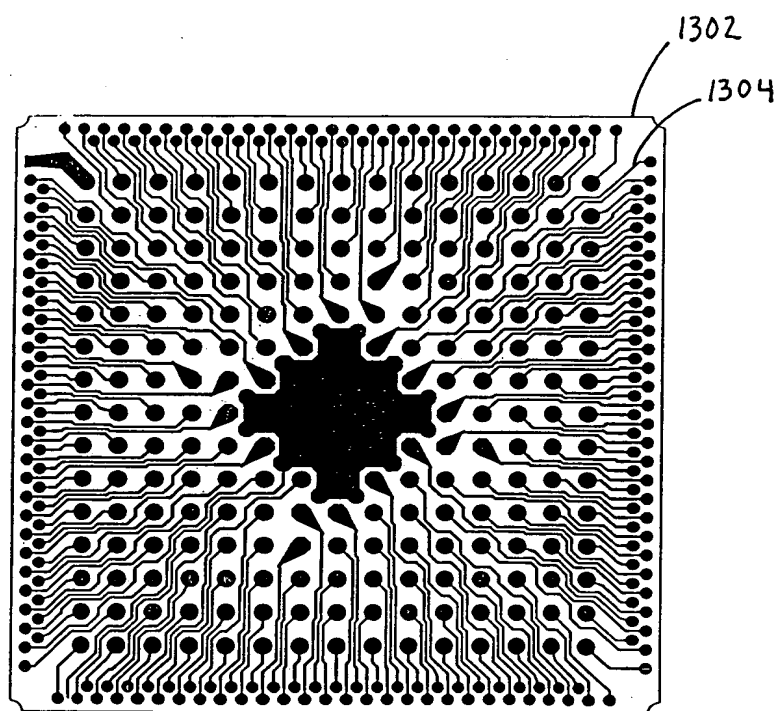


FIG. 13

1400

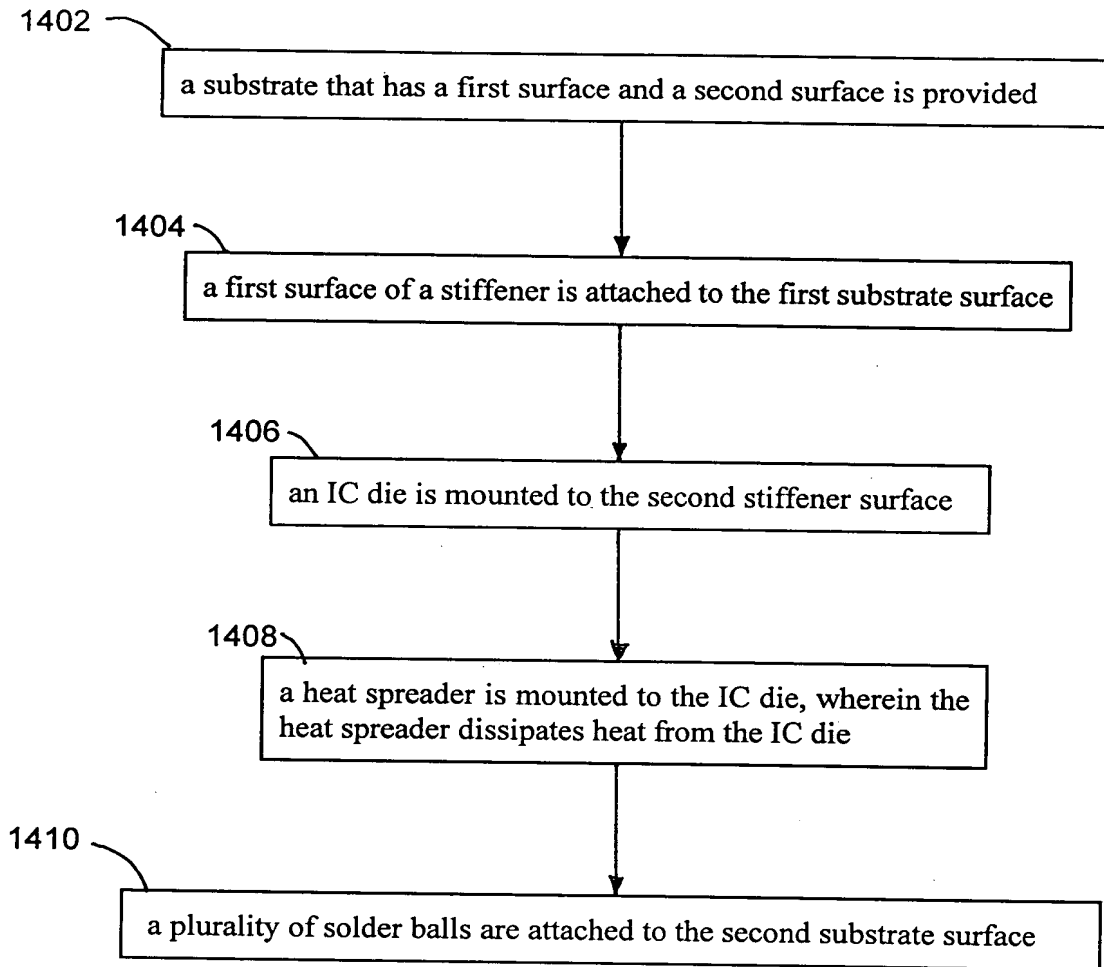


FIG. 14

1500

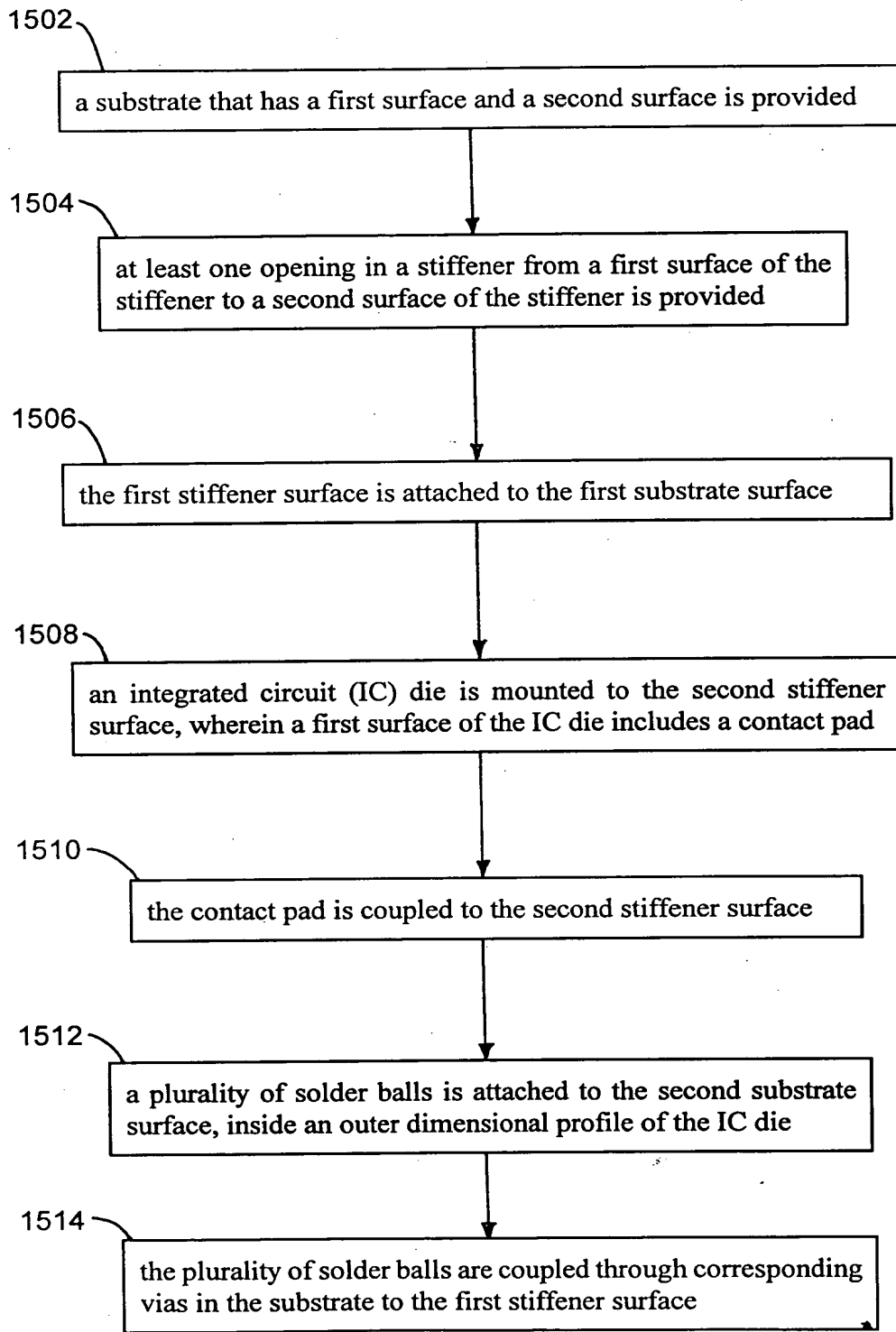


FIG. 15

1600 →

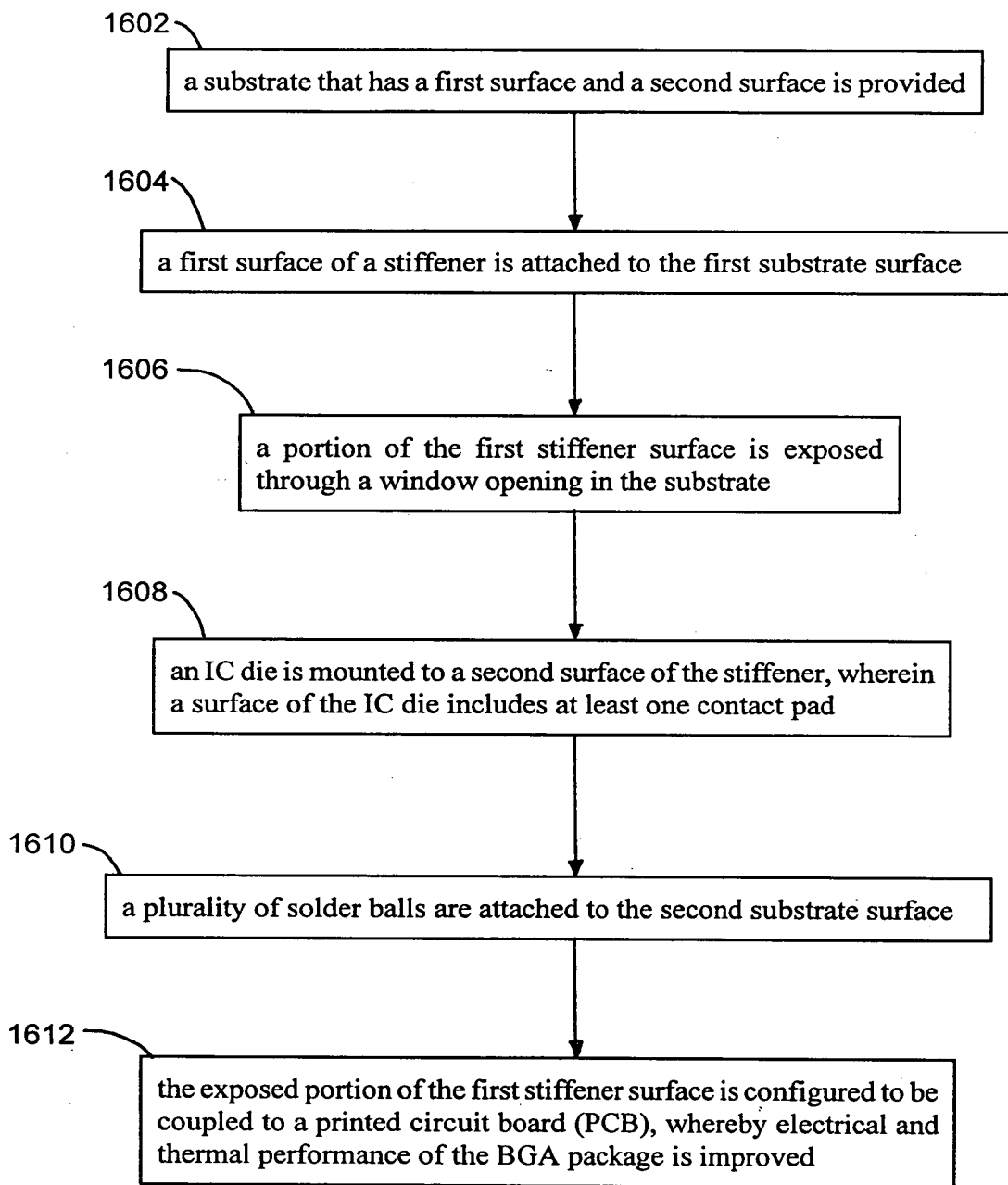


FIG. 16A

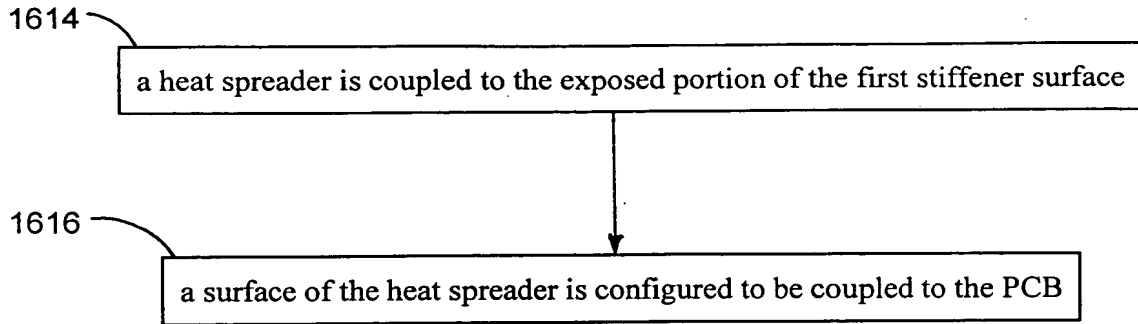


FIG. 16B

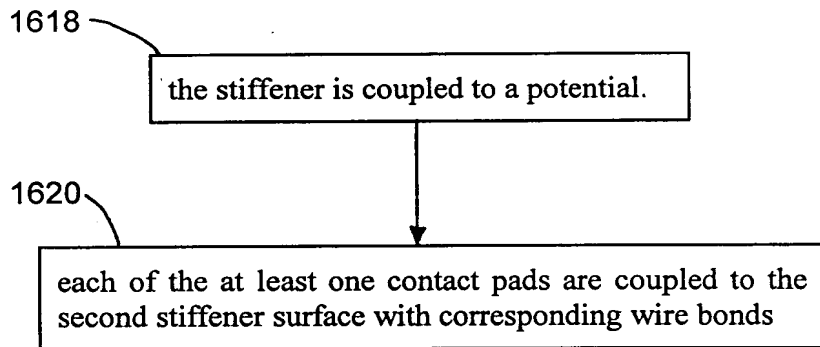


FIG. 16C

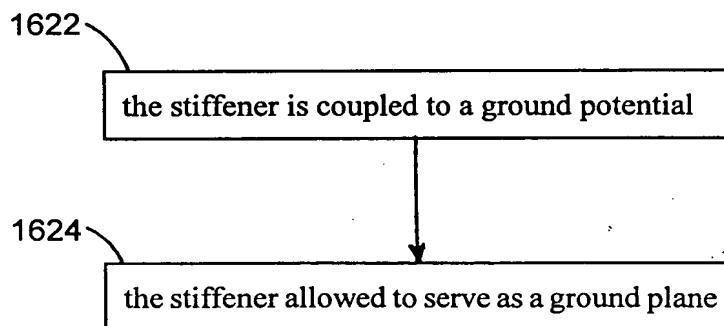


FIG. 16D

1700 →

1702

a substrate that has a first surface and a second surface is provided

1704

a first surface of a stiffener is attached to the first substrate surface

1706

an IC die is mounted to the first stiffener surface

1708

a plurality of solder balls are attached to the second substrate surface

1710

a metal ring is attached to the first stiffener surface

FIG. 17

002227 99E2460



1800 →

1802

a substrate that has a first surface and a second surface is provided

1804

a wire bond opening is created along each edge of an IC die mount position on a stiffener, wherein each wire bond opening extends through the stiffener

1806

a first surface of the stiffener is attached to the first substrate surface

1808

an IC die is mounted to a second surface of the stiffener

1810

at least one of the wire bond openings are bridged with at least one stud

1812

a plurality of solder balls are attached to the second substrate surface

FIG. 18

09742366-122200

09742366-12200

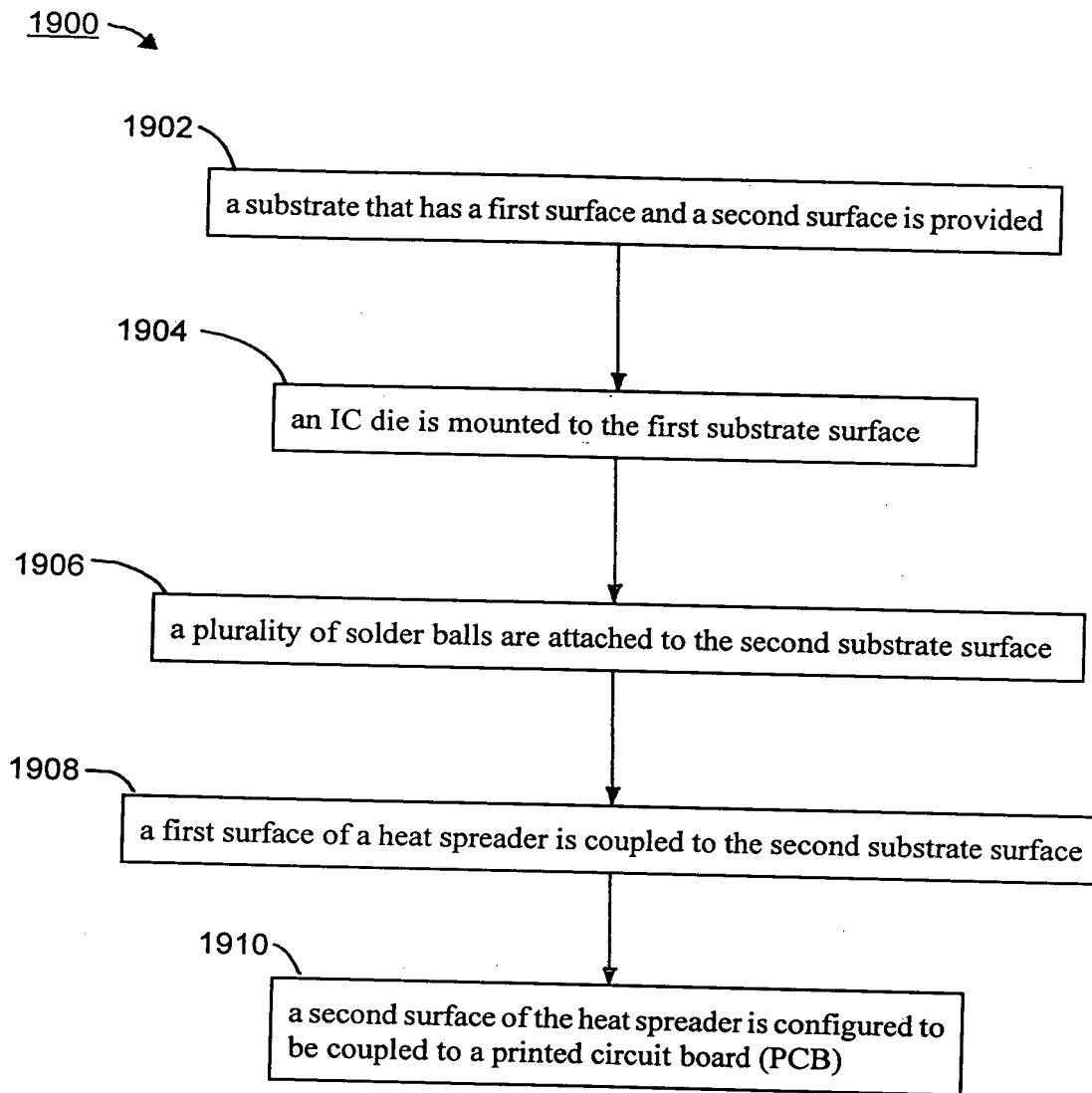


FIG. 19A

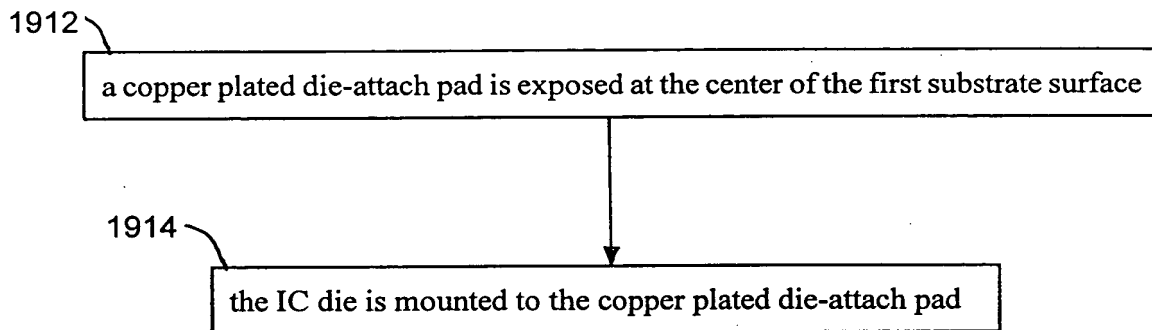


FIG. 19B

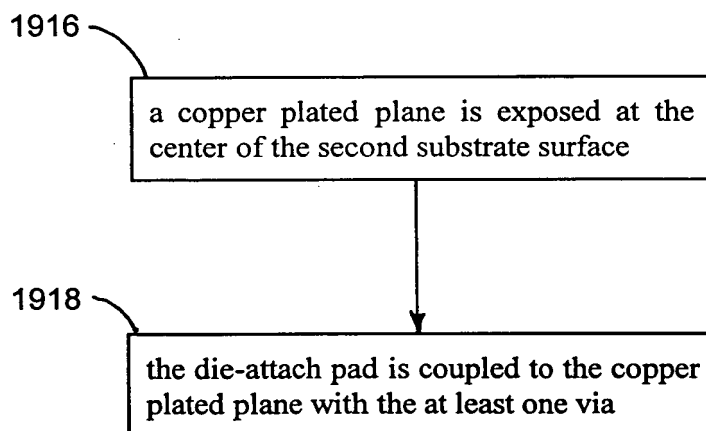


FIG. 19C

097442366 122200

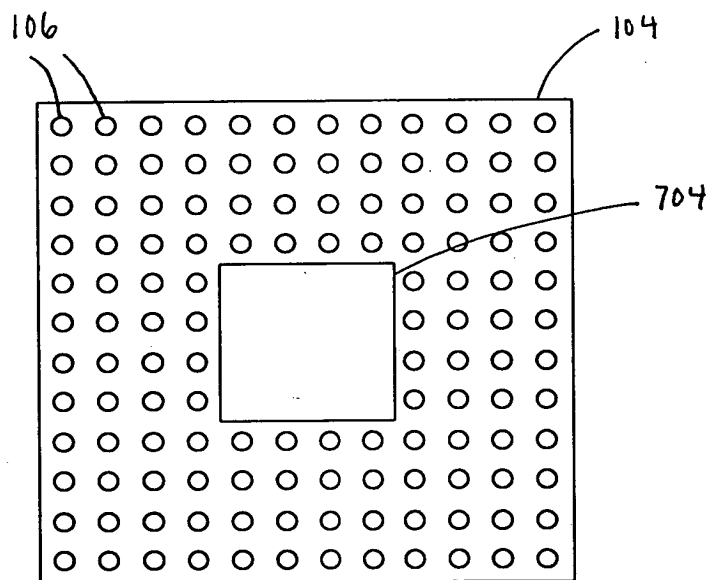


FIG. 20

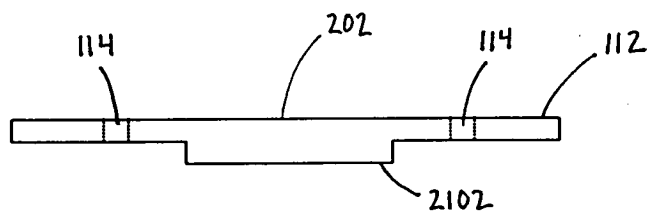


FIG. 21